WHAT IS CLAIMED IS:

1. A photo magnetic field sensor comprising:

a Faraday rotator including a paramagnetic material, a polarizer, an analyzer, a light-irradiating element, and a light-sensing element; wherein

the Faraday rotator including the paramagnetic material is made of a paramagnetic garnet single crystal including at least Tb and Al.

2. A photo magnetic field sensor according to Claim 1, wherein a portion of Tb of the paramagnetic garnet single crystal of the Faraday rotator is replaced by at least one of Pr and Ce.

3. A photo magnetic field sensor according to Claim 1, wherein the analyzer is arranged on an emergence side of the Faraday rotator and along an optical axis substantially parallel to the Faraday rotator.

4. A photo magnetic field sensor according to Claim 1, wherein the polarizer is provided on an incidence side of the Faraday rotator.

5. A photo magnetic field sensor according to Claim 1, wherein the polarizer and the analyzer are arranged such that an optical axis extended through the Faraday rotator passes through the polarization planes of the polarizer and the analyzer.

6. A photo magnetic field sensor according to Claim 1, wherein the light-irradiating element is arranged such that light falls on the polarizer.

7. A photo magnetic field sensor according to Claim 1, wherein a total reflecting mirror is provided between the light-irradiating element and the polarizer.

8. A photo magnetic field sensor according to Claim 1, wherein a total reflecting mirror is provided between the analyzer and the light-sensing element.

9. A photo magnetic field sensor according to Claim 8, wherein collective lenses are provided between the total reflecting mirror and the polarizer and between the total reflecting mirror and the analyzer, respectively.

10. A photo magnetic field sensor according to Claim 1, wherein the Faraday rotator is made of $Tb_3Al_5O_{12}$.

11. A photo magnetic field sensor comprising:

a Faraday rotator including a paramagnetic material, a polarizer, an analyzer, a light-irradiating element, and a light-sensing element; wherein

the Faraday rotator has a columnar shape in which a diameter A (mm) of the column of the Faraday rotator and a distance B (mm) between one end of the Faraday rotator and the other end thereof satisfies $0 < A \leq 2$ and $1 \leq B/A \leq 10$.

12. A photo magnetic field sensor according to Claim 11, wherein a portion of Tb of the paramagnetic garnet single crystal of the Faraday rotator is replaced by at least one of Pr and Ce.

13. A photo magnetic field sensor according to Claim 11, wherein the analyzer is arranged on an emergence side of the Faraday rotator and along an optical axis substantially parallel to the Faraday rotator.

14. A photo magnetic field sensor according to Claim 11, wherein the polarizer is provided on an incidence side of the Faraday rotator.

15. A photo magnetic field sensor according to Claim 11, wherein the polarizer and the analyzer are arranged such that an optical axis extended through the Faraday rotator passes through the polarization planes of the polarizer and the analyzer.

16. A photo magnetic field sensor according to Claim 11, wherein the light-irradiating element is arranged such that light falls on the polarizer.

17. A photo magnetic field sensor according to Claim 11, wherein a total reflecting mirror is provided between the light-irradiating element and the polarizer.

18. A photo magnetic field sensor according to Claim 11, wherein a total reflecting mirror is provided between the analyzer and the light-sensing element.

19. A photo magnetic field sensor according to Claim 18, wherein collective lenses are provided between the total reflecting mirror and the polarizer and between the total reflecting mirror and the analyzer, respectively.

20. A photo magnetic field sensor according to Claim 11, wherein the Faraday rotator is made of $Tb_3Al_5O_{12}$.